Explosives Contamination Prevention Procedures

1 Purpose

This document sets forth the procedures for explosives contamination prevention and supplements the requirements of the FBI Laboratory *Quality Assurance Manual (QAM)* and the *Laboratory Operations Manual (LOM).*

As with all trace analysis, the importance of taking preventative measures to ensure that contamination does not occur is critical with explosives examinations. These measures need to be followed in cases involving both explosives residues as well as bulk materials. Every circumstance is unique and requires expert judgment. Several measures are employed to ensure that transfer and contamination do not occur in casework.

Submissions from multiple locations (e.g., a post-blast crime scene and the subsequent search of a subject's residence) should be physically separated from each other until after the explosives residue examinations and other trace evidence examinations (e.g., hairs, fibers) have been completed. If items from searches of multiple locations are submitted to the FBI Laboratory in a single container, an evaluation will be made by the explosives chemistry and/or explosives and hazardous devices examiner, in consultation with the trace evidence examiner(s), regarding the manner in which to proceed and any subsequent limitations regarding the significance of the analytical results.

2 Scope

These procedures apply to caseworking personnel conducting work in explosives chemistry and explosives and hazardous devices analysis who examine or handle evidence or known energetic materials.

3 Equipment/Materials/Reagents

Equivalent equipment, materials, and reagents may be substituted as needed.

3.1 Equipment

- Heat sealer

3.2 Materials

- Disposable filters
- Disposable gloves (nitrile or latex)
- Disposable plastic syringes
- Heat-seal bags

- Kraft paper
- Laboratory coat (freshly laundered or disposable)
- Metal cans
- Paper towels
- Safety glasses
- Sticky mats
- Various disposable glassware and plasticware

3.3 Reagents

- Isopropyl alcohol (70% commercial product)

4 Procedures

4.1 Evidence Breakdown

Appropriate personal protective equipment (PPE) (e.g., laboratory coat, disposable gloves) will be worn by personnel during the breakdown process. Items to be examined for explosives residues and/or other trace evidence will remain in their original containers.

Items to be examined for explosives residues or trace evidence will only be photographed outside of its original packaging after the completion of all appropriate chemical or trace analyses unless there are unusual circumstances precluding this requirement. If photographs must be taken before explosives residue or trace evidence examinations are conducted, the camera and the area around it must be thoroughly cleaned and appropriate control samples will be taken before the items are removed for photography.

When it is determined that explosives residue examinations are to be conducted on an item, the following procedures will be used to prevent contamination.

4.1.1 If the primary evidence container is not opened, the item(s) should remain in this packaging and be taken to the explosives chemistry examiner. If breakdown, safety check, or multi-discipline visual exam needs to be conducted where the container must be opened, this should be performed with the explosives chemistry examiner and/or chemist in the explosives trace room, when possible. Otherwise, the handling of the evidence should be recorded (e.g., check-in notes, case notes, Communication Log) to allow for the identification of potential sources of contamination.

4.1.2 If an item(s) is removed from the original container for repackaging, the specimens must be transferred to an appropriate new container (e.g., glass vial, heat-sealable bag, metal can). During the transfer, clean disposable gloves must be worn and the evidence will be placed directly into the clean container without coming in contact with any other surfaces.

4.1.3 Bulk and trace evidence examinations will be conducted on appropriately prepared work surfaces (see sections 4.2 and 4.3) covered with clean, disposable paper. The work surface

covering will be replaced, at minimum, upon completion of the evidence breakdown process for each submission. This procedure will be used for each new submission. At no time should explosive residues evidence be placed upon an improperly prepared work surface.

4.2 Preparation of Laboratory Work Surfaces

Laboratory work surfaces will be prepared in the following manner for evidence designated for explosives chemistry examinations. Personnel will:

4.2.1 Wear appropriate PPE (e.g., safety glasses, laboratory coat, disposable gloves) and clean the work surfaces with isopropyl alcohol (IPA). The applied volume of the solution should be kept to a minimum to sufficiently clean the work surface for examination. A new disposable paper towel will be used to wipe the surface.

4.2.2 Cover the work surfaces with a disposable material such as kraft paper.

4.3 Preparation of Explosives Trace Rooms

Separate areas have been designated for residue and bulk explosives chemistry examinations. An area with limited access has been dedicated for residue analysis (explosives trace room). Sticky mats have been placed at the threshold of these rooms to minimize the possibility of contamination. Personnel utilizing these areas must sign a logbook to record the date and laboratory number associated with the evidence being analyzed within the room.

The following procedure will be followed before removing any evidence from its packaging for analysis in the explosives trace rooms. The explosives chemistry examiner or chemist will:

4.3.1 Wear appropriate PPE and clean the work surfaces with an IPA solution. The applied volume of the solution should be kept to a minimum to sufficiently clean the work surface for examination. A new disposable paper towel will be used to wipe the surface.

4.3.2 Cover the work surfaces with a disposable material such as kraft paper.

4.3.3 Collect appropriate negative control samples as referenced in the Explosives Residue Analysis SOP.

4.3.4 Wear a new disposable laboratory coat (Tyvek or equivalent) and clean disposable gloves (clean room gloves preferable when handling evidence) prior to examining evidence items. Disposable supplies such as glassware/plasticware, syringes, and filters will be used when available and appropriate.

4.3.5 Change laboratory coat and gloves and clean work surfaces between examinations, as necessary.

4.4 Personal Hygiene

Personnel conducting examinations within laboratory space are expected to wear clothing free of

explosive(s). In particular, clothing must be changed after performing work on the explosives range and before entering any areas in the laboratory in which evidence containing explosives residue is stored, processed, and/or examined. It may also be necessary for personnel to shower or bathe in order to remove any potential contamination from hair or skin and wash other items such as glasses, watches.

Firearms will not be worn while working in the explosives trace room.

5 Safety

Safety protocols, contained within the FBI Laboratory Safety Manual, will be observed at all times.

Standard precautions will be taken for the handling of all chemicals, reagents, and standards including standard universal precautions for the handling of biological and potentially hazardous materials. Refer to the FBI Laboratory Safety Manual for proper handling and disposal of all chemicals. Personal protective equipment will be used when handling any chemical and when performing any type of analysis.

6 References

FBI Laboratory Quality Assurance Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

FBI Laboratory Operations Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

FBI Laboratory Safety Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

Explosives Quality Assurance Manual, Federal Bureau of Investigation, Laboratory Division, Explosives, latest revision.

Rev. #	Issue Date	History
0	07/07/2006	Original Issue to follow QATU formatting and ASCLD/LAB-*International* requirements.
1	05/09/2011	Removed the use of bleach as a cleaning solution and replaced with isopropyl alcohol throughout document. Updated should to will in sections 2, 4.1, 4.3, 4.3.1, and 4.3.4. Clarified cleaning requirements if photographs must be taken in section 4.1. Changed documented to recorded in section 4.1.1. Corrected numbering error in section 4.3. Clarified section 4.3.1 regarding negative control. Updated sections 4.2.1 and 4.3.2 regarding type of disposable laboratory coats. Added FBI Laboratory Safety Manual to section 5. Updated references in sections section 6.
2	10/02/2017	Administrative changes for grammar and clarity. Removed references to the Explosives Unit to applicability to those conducting explosives chemistry, fire debris, and explosives and hazardous devices examinations. Updated sections 1 and 2. Updated and reorganized section 3. Specified explosives residues in section 4.1 and presence of a chemist during opening of containers in section 4.1.1. Added use of disposable material to section 4.2.2. Added section 4.3.1 on PPE and cleaning process. Added collection of negative controls in section 4.3.3. Updated safety information in section 5. Updated references in section 6.

Approval

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QA Approval

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